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United States Patent [19]**Masuda**[11] **Patent Number:** **5,276,272**[45] **Date of Patent:** **Jan. 4, 1994****[54] WIND INSTRUMENT SIMULATING APPARATUS****[75] Inventor:** Hideyuki Masuda, Hamamatsu, Japan**[73] Assignee:** Yamaha Corporation, Hamamatsu, Japan**[21] Appl. No.:** 907,877**[22] Filed:** Jul. 2, 1992**[30] Foreign Application Priority Data**

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84/622; 84/630; 84/659

[58] Field of Search 84/622, 630, 659, 660, 84/661, 600, 601, 477 DIG. 9, DIG. 10**[56] References Cited****U.S. PATENT DOCUMENTS**

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In order to simplify the input operations for the simulation of the non-electronic musical instrument such as the wind instrument, input values are visually displayed on a display screen of a display unit. Herein, by operating an input device such as a keyboard, a mouse, a light pen and the like, a tube shape, position and size of a tone hole of the wind instrument is visually drawn on the display screen in accordance with the predetermined plotting programs. In order to simplify calculations required for the computer simulation, the tube shape of the wind instrument, such as a conical shape, is divided into plural portions, each of which is simulated by another simple shape, such as a cylindrical shape. Then, parameters defining the simulated shape of each portion of the tube shape are generated in accordance with the predetermined algorithm, and these parameters are memorized in a memory. When performing a music by use of a wind-instrument-type performance input device, the corresponding parameters are automatically read from the memory so that simulated sounds of the wind instrument can be generated from the electronic musical instrument.

13 Claims, 18 Drawing Sheets